

Figure 1 - FLUPSY

Provisional Patent Application

AN INTEGRATED SYSTEM FOR SHELLFISH PRODUCTION: Encompassing Hatchery, Nursery, Growout, and Broodstock Conditioning Phases

Inventor: Russell Patton Davis June 20, 2000

FIGURE 1 - FLUPSY ( Floating Upweller System )

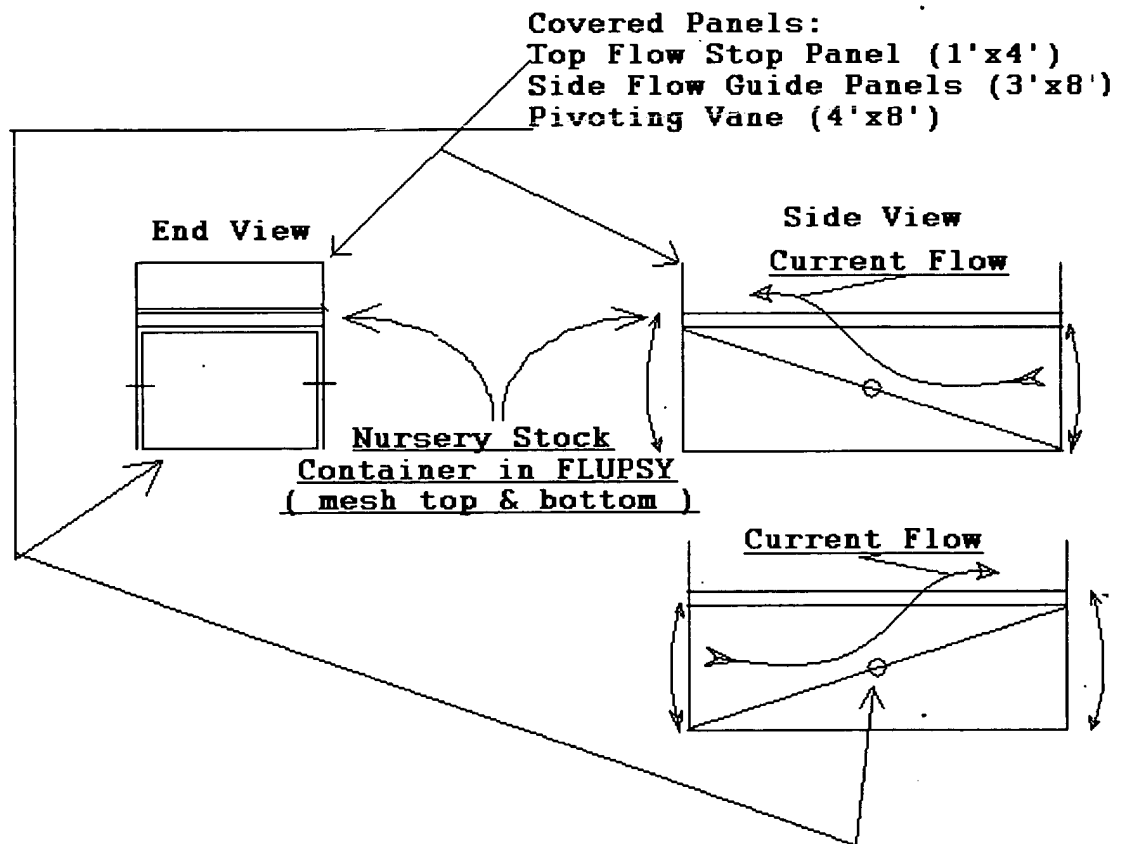


Figure 2 - BUPSY

Provisional Patent Application

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FIGURE 2 - BUPSY ( Bottom Upweller System )

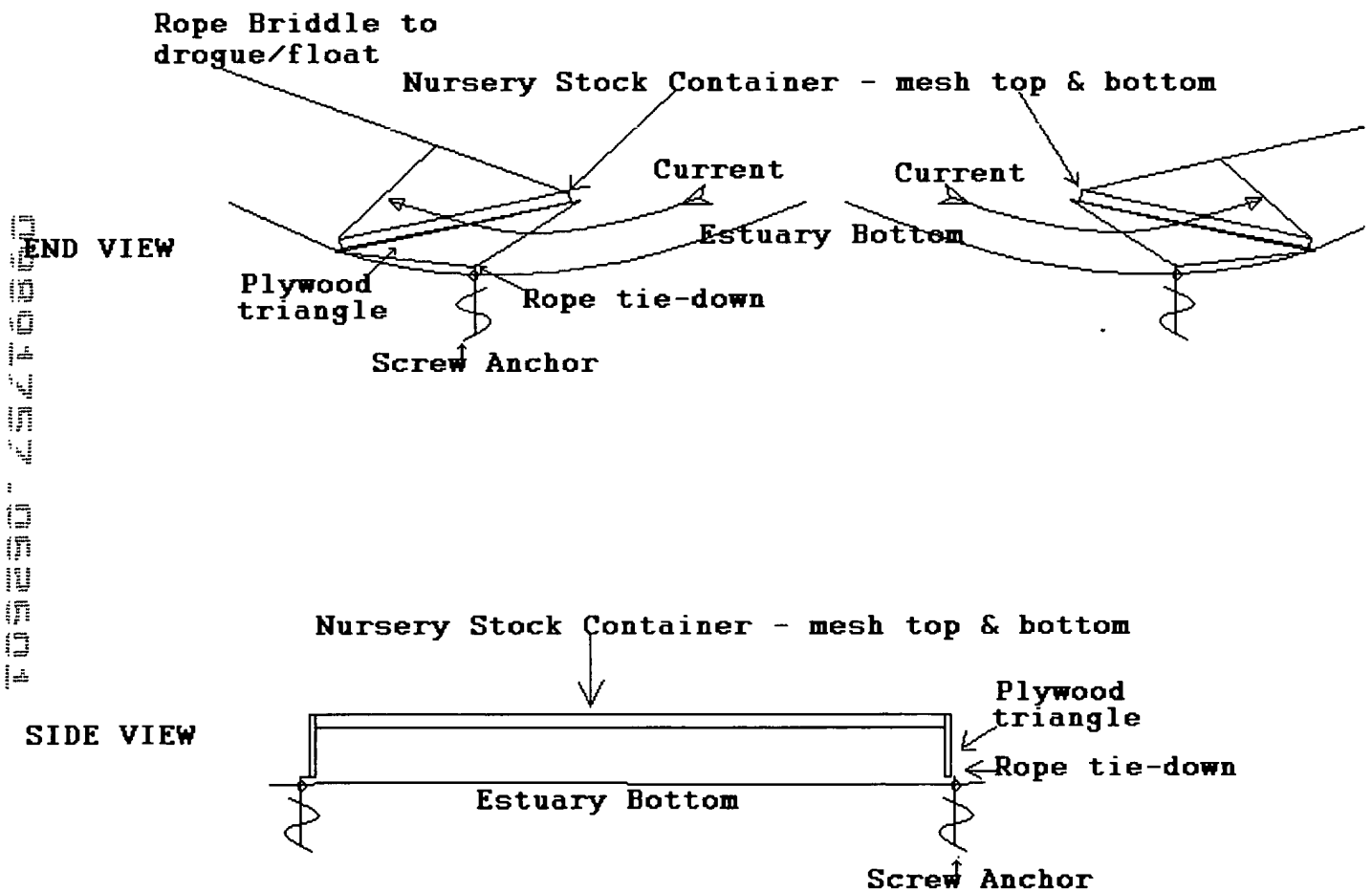


Figure 3 - Nursery Stock Container

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Figure 3 - Nursery Stock Container - Mesh top and bottom, with solid and compressible shims, used in both FLUPSY and BUPSY

TOP VIEW - Two ridged frames, each covered with mesh ( sized to retain shellfish ), bolted together.

The frames are seperated with a combination of ridged and compressible (closed cell foam ) shims so that the shellfish are gently but securely held by the assembly.

SIDE VIEW

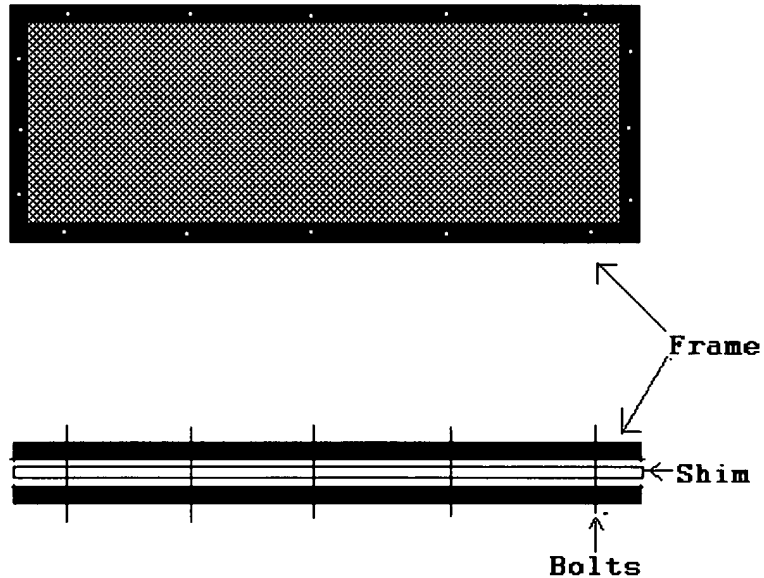


Figure 4 - End View of Spawntoon

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Figure 4 - End View of Spawntoon Unit  
consisting of FLUPSY sub-units and hatchery pools

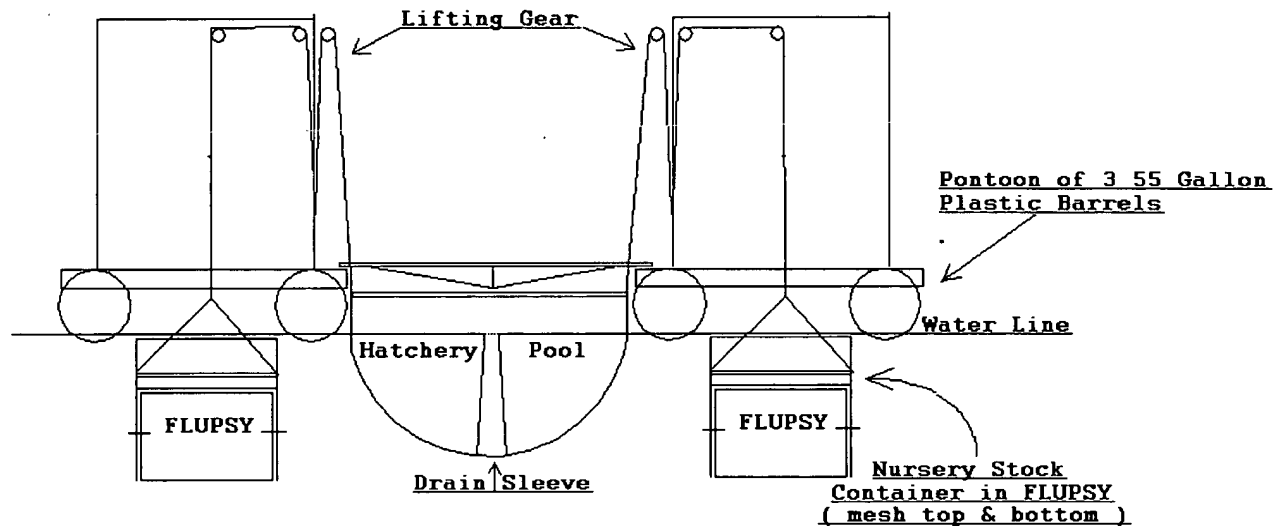


Figure 5 – Drain Device for floating hatchery live-well

**Figure 5 ) Hatchery Live-Well**

Filled with filtered water for spawn. The drain device is plugged. The ridged frame of the Hatchery Pool is either held above the water by ropes or supported by the floatation of the live-well itself.

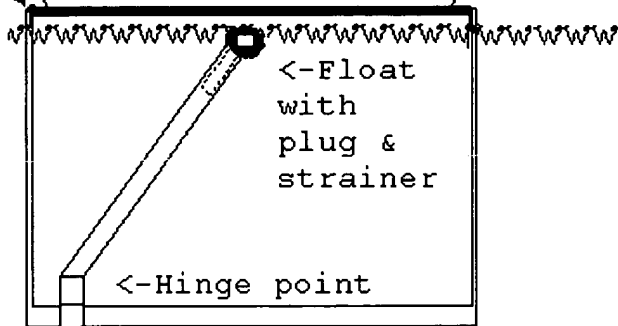


Figure 6 – SpawnToon Motorboat "The Mama Cass Ostrea"

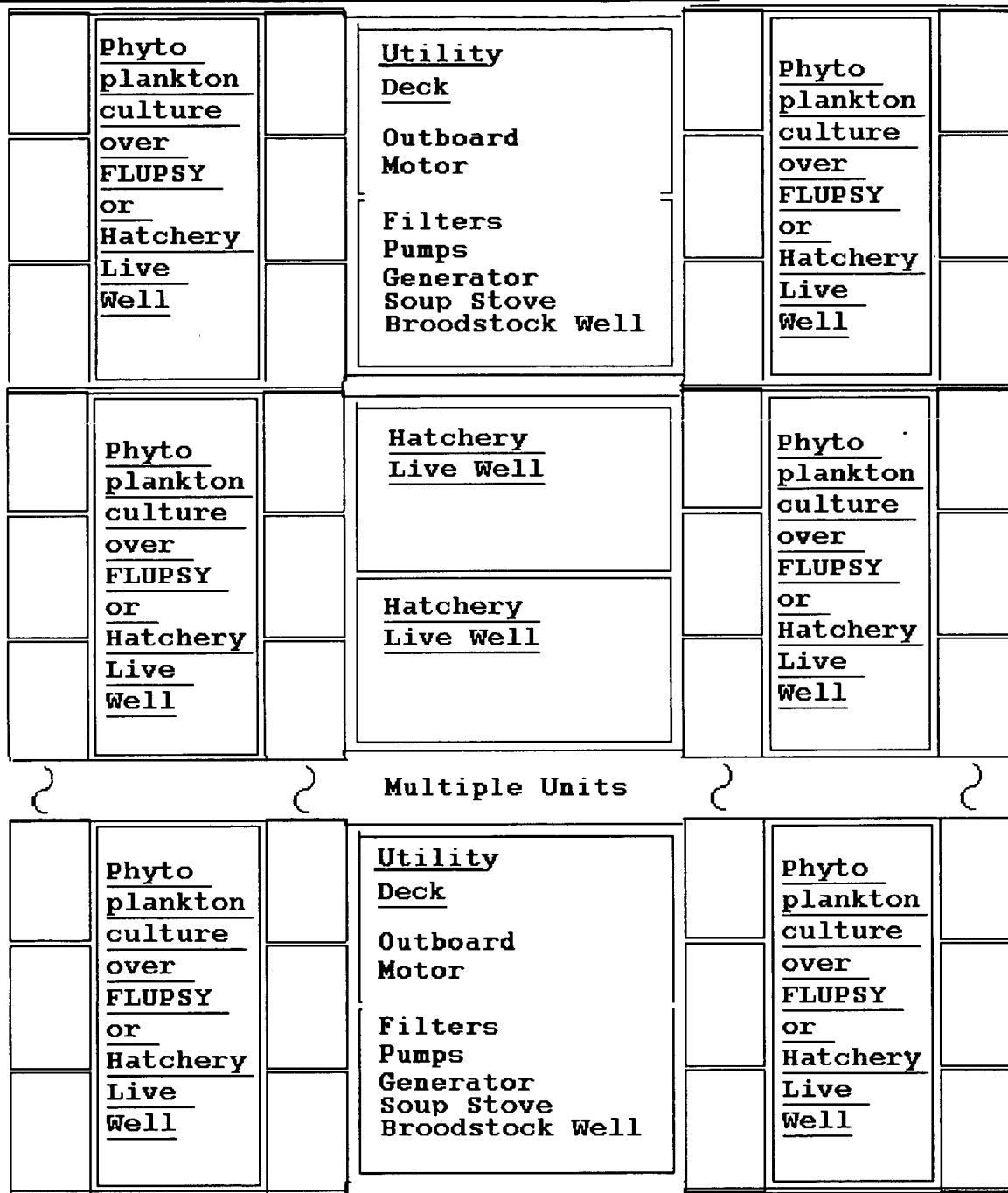


Figure 7 – Phytoplankton Culture: Culture Bag w/fittings, Stretcher resting on two pontoons

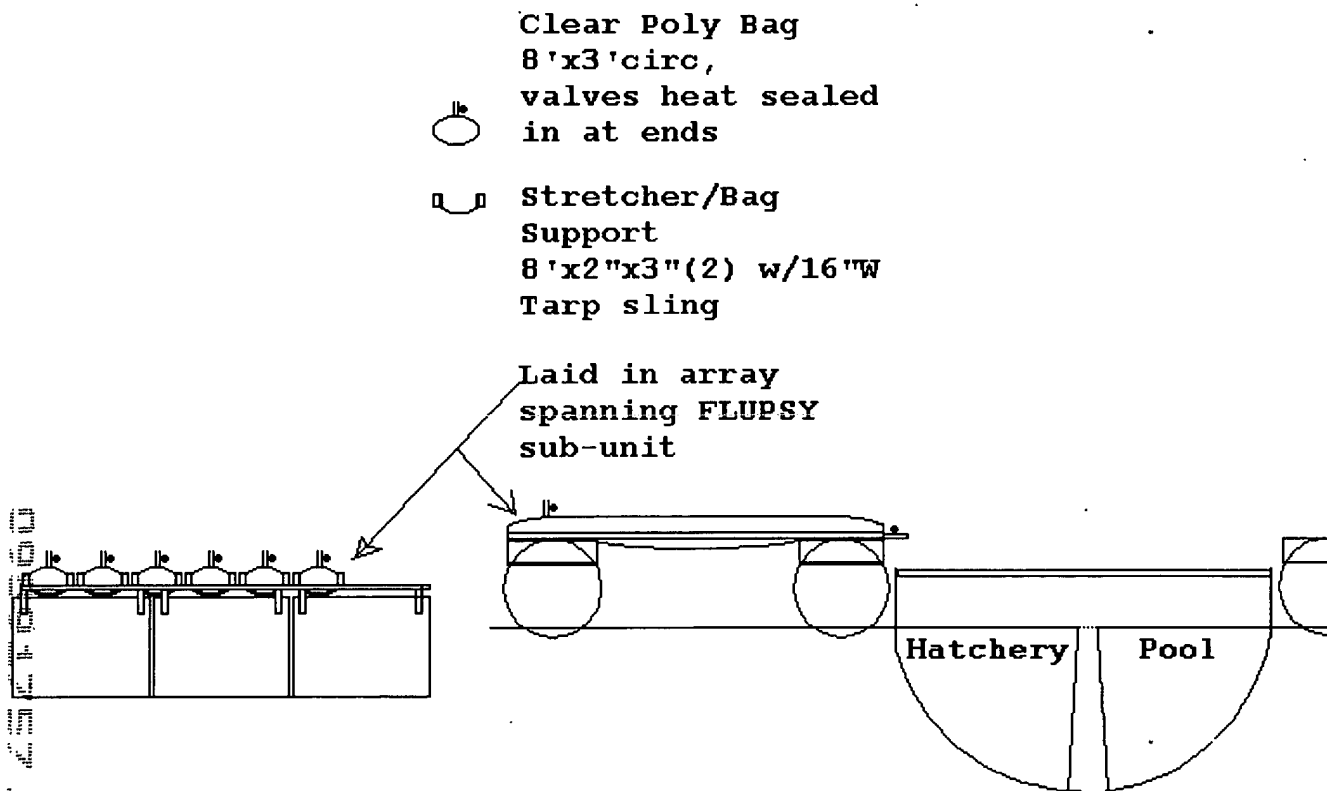
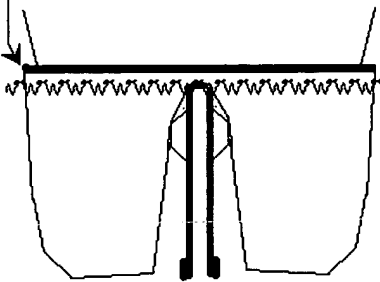
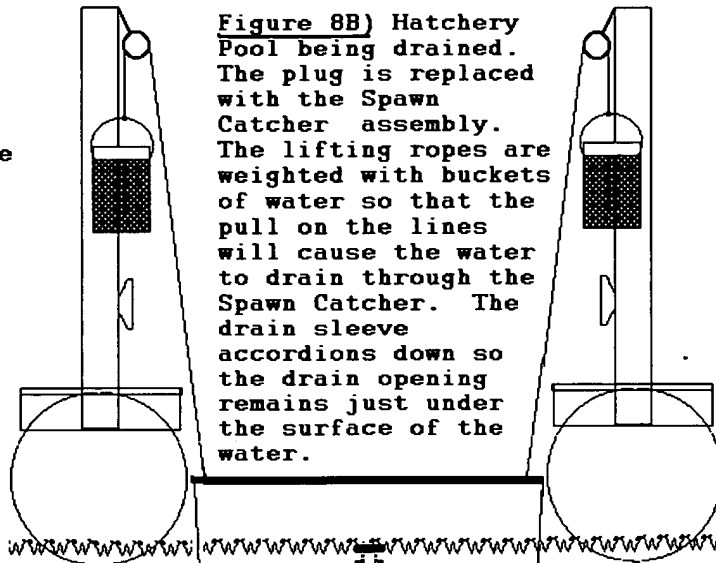


Figure 8 – Hatchery Live Well Drain-Sleeve and Spawn Catcher

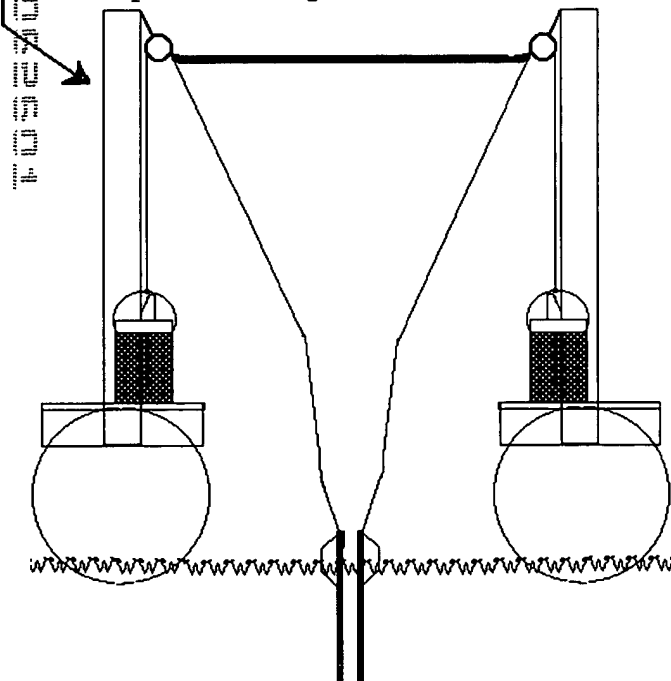
**Figure 8A) Hatchery Pool**  
Filled with filtered water for spawn. The drain device is plugged. The ridged frame of the Hatchery Pool is held above the water by ropes.



**Figure 8B) Hatchery Pool being drained.**  
The plug is replaced with the Spawn Catcher assembly. The lifting ropes are weighted with buckets of water so that the pull on the lines will cause the water to drain through the Spawn Catcher. The drain sleeve accords down so the drain opening remains just under the surface of the water.



**Figure 8D) Hatchery Pool lifted out of the water for cleaning, sunning, and maintenance.** The drain pipe is unpinned from the collar affixed to the pool drain sleeve so the spawn can be recovered. Dead spawn and feces on the bottom do not drain out until the drain pipe and Spawn Catcher assembly are unpinned and removed. The spawn are rinsed out into a filled pool waiting for them.



**FIGURE 8C)**

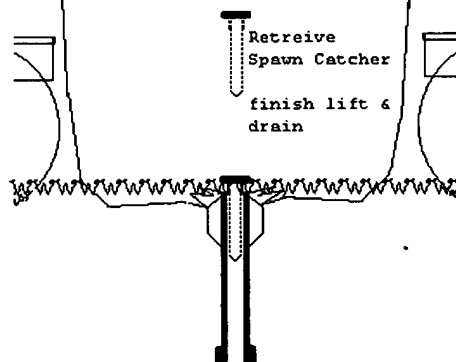




Figure 9 - Outboard Motor Mount ( with DAVIS NOZZLE ) slung underneath SpawnToon deck, Profile of the Tubular Shroud surrounding the propeller and bolted to the cavitation plate

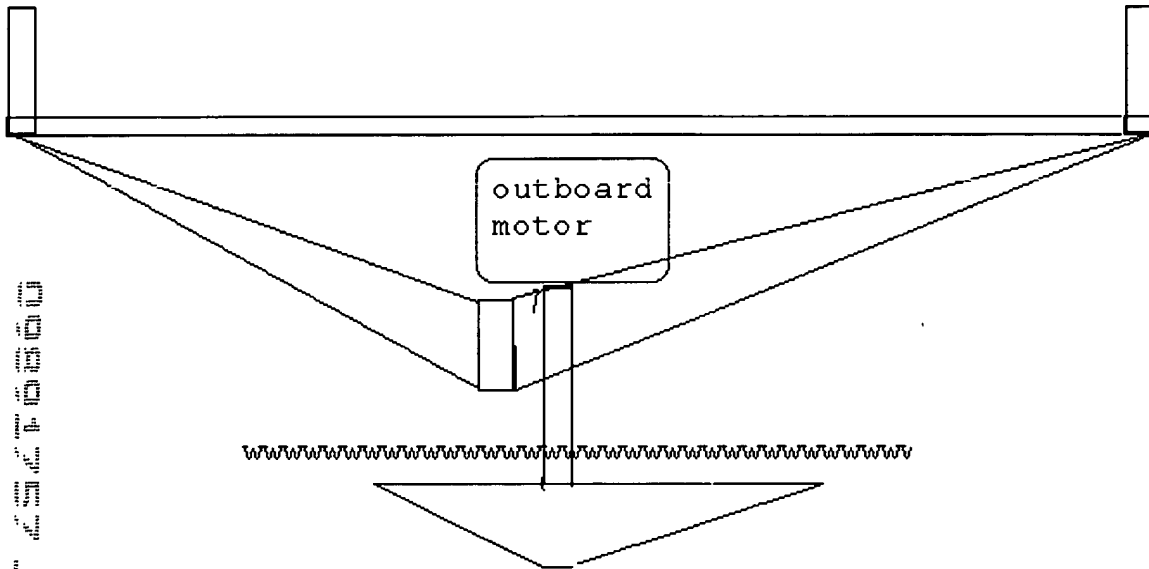


Figure 10 - Davis Harpoon anchor

**Figure 10) DAVIS HARPOON ANCHOR**

Made from 2 inch dia.  
galvanized pipe 36 inches  
long

one half the pipe is cut  
from one half the length  
to form a trough

the trough portion is  
bent outward and cut to  
form a point on the end

a bolt for  
attaching the  
anchor line is  
placed in tube

anchor is washed  
into place much  
like a piling or  
bulkheading

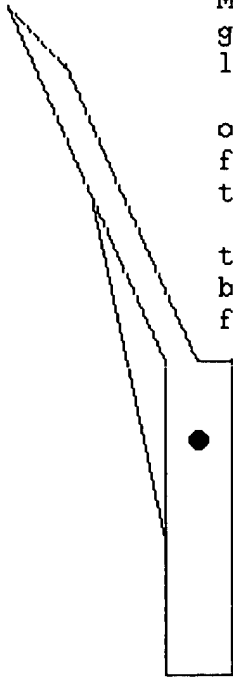
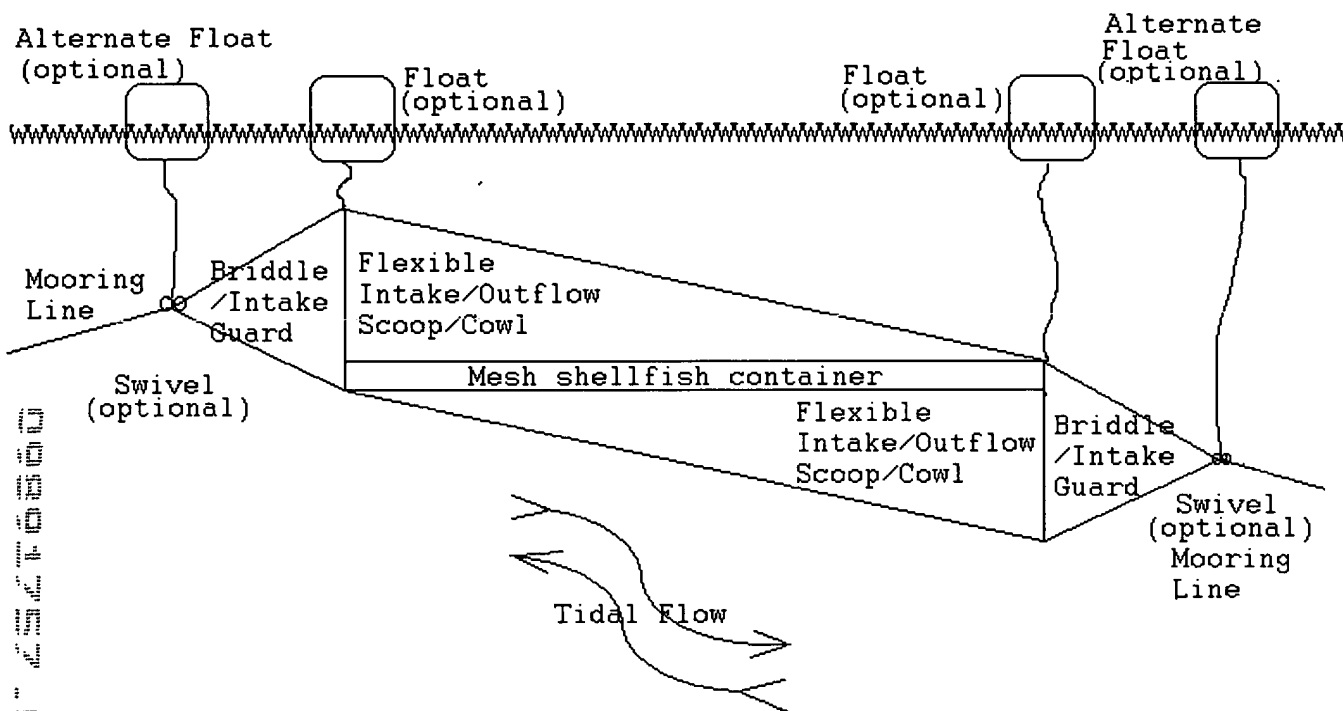


FIG. 10

Figure 11 - TWWELLER

**Figure 11 A) TWWELLER : side view**

Two Way Upweller/Downweller Shellfish Growing Device



**FIGURE 11 B) TWWELLER: end view**

Rotating Option  
On swiveled mooring

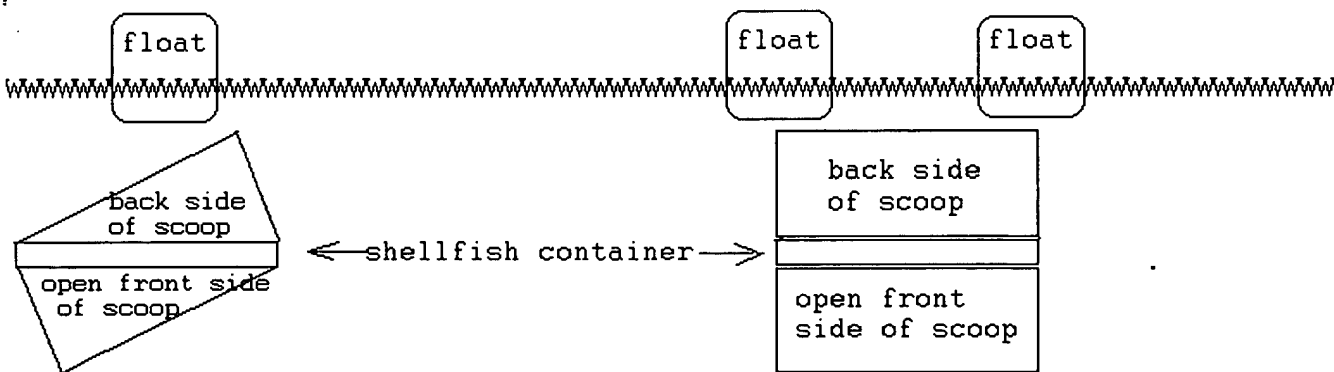
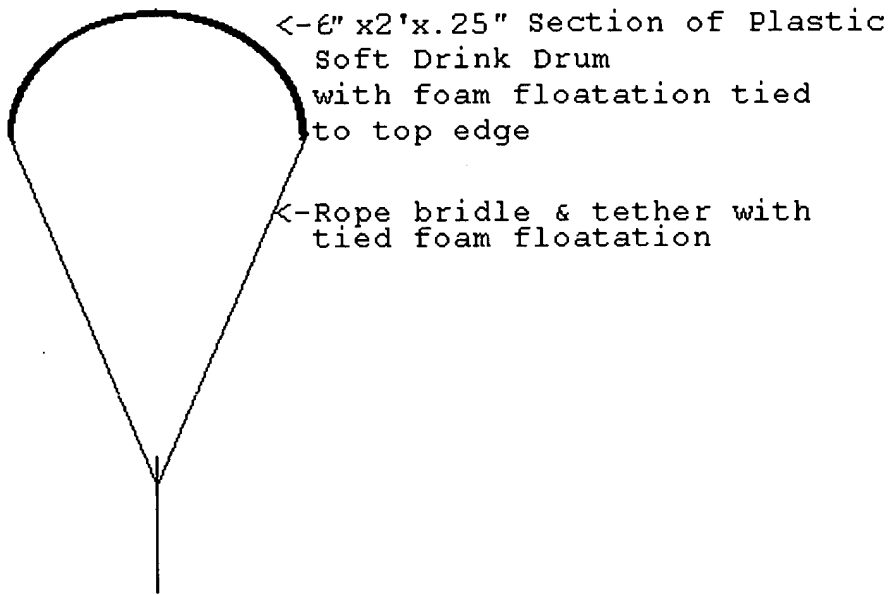


Figure 12 - Float-Drogue

Figure 12) Float-Drogue



**Figure 14)**

WWWWWWWWWWWWWWWWWWWW



**Figure 15) Waffle Bulkhead**



**Figure 16)**

Clam Predator->  <-Exclusion Net

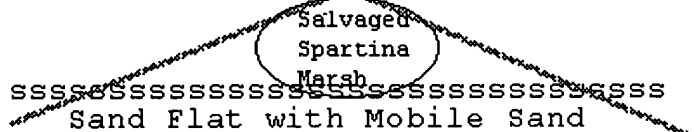


Figure 17) BUPSY for lower current  
or under possible boat traffic

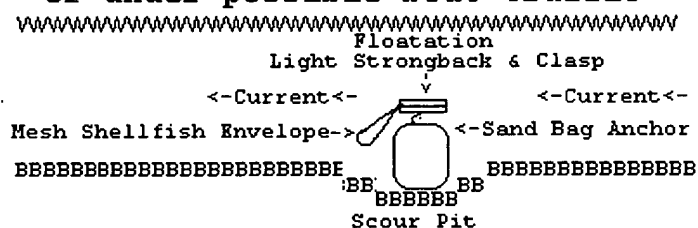


Figure 18 – Shellfish Hatchery-Nursery Container of CLAIM 16: Set of two nested open top Self Cleaning screen set of CLAIM 7 used by the Marsupium

Figure 18)

Shellfish Hatchery/Nursery  
Container Assembly Consisting of  
Two Nesting Open-Top Mesh  
Covered Box Frames

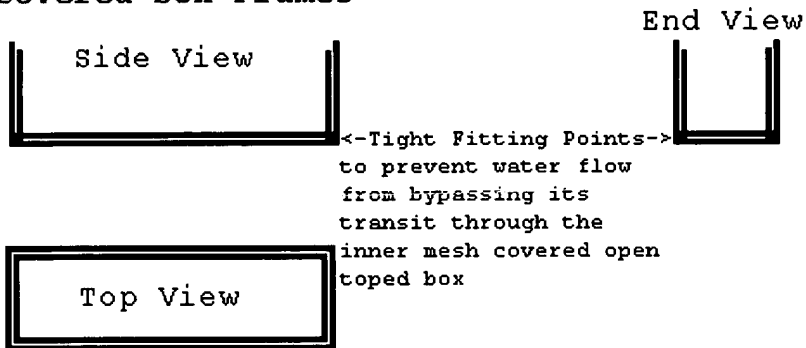


Figure 19 – Shellfish: SAV Polyculture Groin Substitute of CLAIM 18

Figure 19)

Living Groin made from a bed of Shellfish  
Predator Exclusion Net, & Sub-aquatic  
Vegetation

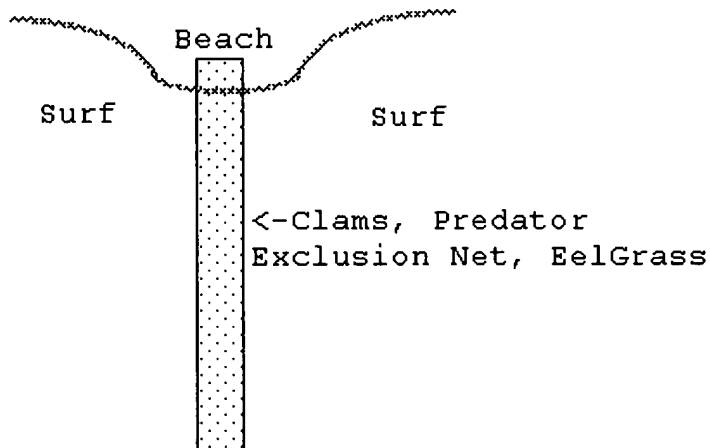
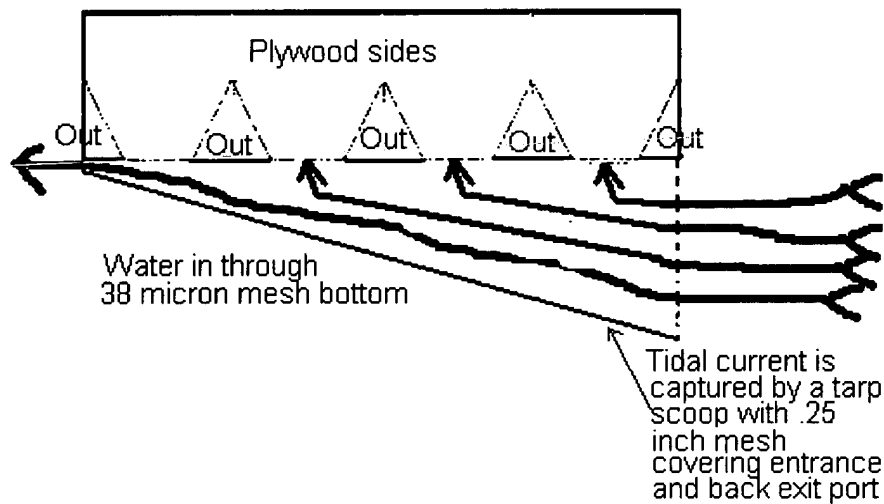


Figure 20 Foil Array of CLAIM 10 used for current powered directional sediment transport



Figure 21 Grounding Tolerant FLUPSY scoop of CLAIM 9 servicing a crenellated Marsupium. Side View



Water out through triangular ports in the side after passing through a 38 micron mesh crenallation panel  
Plywood panel separates inbound water from outbound water in the crenallation